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Abstract

Aim: Foodservice is a key component of dietetics education and practice internationally yet benchmarks for competency are limited. This study sought to review and moderate an assessment artefact of foodservice work integrated learning (WIL) to develop a shared understanding of one tool which may be used in a suite of evidence to demonstrate competence. **Methods:** The foodservice curricula and assessment artefacts were described for the foodservice program at each of four participating universities. An assessment artefact from WIL, the report, was identified as an indicator of foodservice competence common to each program. Each university provided four purposively sampled WIL reports, assessed in duplicate by two academics from other participating universities using the corresponding university assessment rubric. Collated assessment results, along with the original assessment, were presented back to assessors. A semi-structured group discussion explored variations in assessment results, factors influencing decisions, and potential changes needed for assessment documentation. **Results:** There was variation in assessment outcomes between independent assessors. In some instances assessors did not consistently deliver the same assessment outcome, nor rank students in sequential order of performance. This variation was less where an absolute ranking of satisfactory/unsatisfactory was applied. The assessor discussion revealed three key concepts: importance of understanding the project scope; challenges which influence assessment decision making; importance of understanding the broader program of assessment. **Conclusions:** Assessment inconsistencies emphasise the importance of multiple assessors and assessment artefacts across a programmatic assessment model, and the need for a clear understanding of competence in nutrition and dietetics.

Keywords

moderation, artefact, foodservice, programs, dietetics, nutrition, assessment

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ORIGINAL RESEARCH

Moderation of a foodservice assessment artefact in nutrition and dietetics programs

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Abstract

Aim: Foodservice is a key component of dietetics education and practice internationally yet benchmarks for competency are limited. This study sought to review and moderate an assessment artefact of foodservice work integrated learning (WIL) to develop a shared understanding of one tool which may be used in a suite of evidence to demonstrate competence.

Methods: The foodservice curricula and assessment artefacts were described for the foodservice program at each of four participating universities. An assessment artefact from WIL, the report, was identified as an indicator of foodservice competence common to each program. Each university provided four purposively sampled WIL reports, assessed in duplicate by two academics from other participating universities using the corresponding university assessment rubric. Collated assessment results, along with the original assessment, were presented back to assessors. A semi-structured group discussion explored variations in assessment results, factors influencing decisions, and potential changes needed for assessment documentation.

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Key words: assessment, dietitian, education, foodservice, work integrated learning.

Introduction

Foodservice is core to dietetics practice. The delivery of food using systems-based approaches is essential in ensuring the delivery of nutrition interventions and the nutritional status of the dependent populations. Dietitians influence this service delivery within many settings including childcare, hospitals and aged care, as well as the food industry. The most recent international reports profiling the education and work of dietitians highlighted that 93% of countries employ dietitians in foodservice and hospitality roles.¹ Therefore, the way dietitians develop relevant skills and are assessed as competent to practice in foodservice settings remains an important element of dietetics education. There is limited evidence on effective pedagogical approaches, including assessment, that adequately prepare dietitians for practice in foodservice.

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In Australia, the Accreditation Standards for Dietetics Education Programs² provide a framework for course architecture; these are underpinned by the National Competency Standards for Dietitians in Australia.³ These standards mandate a professional work integrated learning (WIL) component of a minimum of 100 working days, including exposure to foodservice systems where populations are nutritionally dependent and/or vulnerable.² Ensuring that students can demonstrate competence against these standards is part of the process of accreditation of dietetic education programs. Students demonstrating competence and graduating from an accredited program are eligible for the professional credential in Australia, Accredited Practising Dietitian.

An integrated program of study is designed to develop the full range of skills and attributes to practice as a dietitian. This includes the development of professionalism, communication, collaboration with clients and stakeholders, and the critical application of the evidence base. Competence in this context involves students demonstrating these skills and attributes across a variety of settings including the provision of food to dependent populations. This WIL is essential to demonstrate competence and safety to practice with minimal supervision within learning experiences that are work relevant.⁴ As the provision of foodservices is not measured by an individual interaction, students will usually complete one or more projects during WIL, relevant to the site of the practice, as part of, and in addition to, engagement with networks and stakeholders in this foodservice environment. In an outcome focused assessment system such as those measured against the Australian competency standards,⁵ it is typical in that at least one student-led, project-based report is produced to assess that students can apply evidence-based practice, engage with stakeholders and produce work with measurable outputs. However, in keeping with the authentic requirements of WIL, the scope and length of the report that arises from this WIL and whether it is prepared by an individual or group varies between WIL sites and universities. Although this detail is not mandated within accreditation standards maintained by the professional association, these reports are often viewed by external parties assessing courses for accreditation as they are a tangible piece of work that can be viewed. Therefore, this work has often been viewed as a proxy for the suitability of a placement, the standards expected by the university and the competence of the student. Of course, universities typically assess students on foodservice WIL utilising a number of artefacts in addition to the report such as site supervisor feedback especially around communication with stakeholders, student reflection, presentation of their work to key stakeholders, and student ability to describe their experiences against the competency standards. Such artefacts may include case documentation, case studies, self-reflection, feedback, and reports.⁶

External referencing including benchmarking, peer review and moderation is now mandatory as part of the Higher Education Standards Framework⁷ to provide

evidence of quality and to inform improvements to enhance student outcomes. The evaluation of a learning model involving online as well as face-to-face experiences within foodservice teaching noted that there is a reliance on demonstrating entry-level competencies for foodservice through lecture/tutorial programs and hospital and industry WIL.⁸ Just as we expect students to have a range of evidence to show competency, as educators, dietitians need a range of evidence to ensure their foodservice WIL and assessment of competency development in this setting is robust. Moderation between universities is one way in which projects, and the reports produced can be reviewed between universities. Where inconsistent assessment is noted in a moderation process the process itself would help explore factors that may influence these decisions⁹ and assist universities to reflect on the rigour of their assessment and opportunities for improvement.

Aspects of assessment moderation have previously been explored in dietetics within clinical contexts,^{10–12} where challenges including task design and student experience with analysis tools have been identified. To date, no similar moderation studies have been undertaken within foodservice management. Therefore, this project sought to review and moderate an assessment artefact of foodservice WIL to develop a shared understanding of one tool that may be used in a suite of evidence to demonstrate competence. The similarities and inconsistencies could then be reviewed to develop recommendations for practice at an individual university level. The results would also inform understandings of programmatic assessment and appropriate outcomes to inform accreditation reviews.

Methods

This study utilised a similar approach to that undertaken in the previous work of Palermo *et al.*,¹² with four of the 15 universities who provide dietetics education in Australia purposively selected to contribute to the process. This was a convenience sample of nutrition and dietetics programs, one from each of NSW, Queensland, South Australia and Victoria. The assessment programs of these four undergraduate and post-graduate nutrition and dietetics programs were considered. A representative from each university described the foodservice curricula and assessment artefacts within each program. The report of a WIL project was chosen for review. As described previously, this is not the only piece of assessment used, however it is often viewed by accreditation assessors and thus was deemed highly relevant for moderation.

Ethics approval to undertake the research was obtained from the Monash University Human Research Ethics Committee which lead the research (CF15/1460—2015000706) and then registered with the subsequent partner universities and participating academics, with memorandums of understanding protecting the confidentiality of assessment tasks.

The moderation activity was informed by the previous research of Krause *et al.*⁹ Each participating university was asked to provide four de-identified assessments (n = 16),

purposively sampled across levels of performance for inclusion in the moderation process. Throughout the moderation process, assessors were blinded to the actual assessment outcomes of the students' reports. An electronic copy of the foodservice project report was provided to one investigator who allocated the reports for moderation. Typically, these reports follow a scientific or business format of background, methods, results and discussion, conclusions and key recommendations for improvement in relation to a problem identified in the foodservice setting. The report is expected to integrate communication, research skills, collaboration, critical thinking and professionalism and thus is demonstrable of a range of skills.

Two representatives (including the foodservice management expert) from each of the four participating universities undertook the role of assessors in the moderation activity. Assessors were experienced Accredited Practising Dietitians, all university academics each with greater than 10 years dietetic experience. All assessors were familiar with professional accreditation, competency standards and with general assessment processes. Reports were assessed in duplicate by two assessors from two different universities. Therefore, each report was assessed by four assessors who were independent of each other in marking, there was no collusion during the process of moderation. No assessors had prior knowledge of the student reports they were marking, i.e. there was no chance that an assessor was re-assessing a student report from their own institution or previous place of employment. Assessors were not provided with orientation to the broader program of assessment for the course or unit, nor did they receive any briefing on the assessment task other than to become familiar with the assessment instrument which was provided to them. An investigator who was independent to the research collated the results into a single spreadsheet. The study did not plan to test instrument reliability, but instead to explore approaches to assessment and the decision-making process around grading of the individual artefact.

Similar to previous research,¹² a semi-structured group discussion lasting 1 hour occurred after assessments were completed, exploring variations in assessment results, factors influencing decisions, and changes needed for assessment documentation into the future. This group discussion was facilitated by one author (CP), a dietitian who is highly experienced in undertaking qualitative and educational research and known to participants. Prompts used by the facilitator were provided prior, and audio recording of the moderation discussion occurred. Written field notes were recorded and analysis to derive key themes was undertaken by one participant and the facilitator. The use of field notes and content analysis, rather than verbatim transcription of interview data in mixed methods research has been supported within healthcare research.¹³ This iterative approach of audio recording with concurrent note taking, listening to and revising field notes and undertaking content analysis was considered appropriate for this research.

Results

The foodservice project report formed one piece of evidence for each university in the assessment of competency (Table 1). It was part of the evidence produced to demonstrate aspects of competency standards in the foodservice setting. Some universities assessed foodservice as a standalone subject, meaning this assessment may be awarded a mark towards a grading, whereas others use this as just part of the evidence of overall competence. Variations in scope (including whether projects were undertaken by individuals, pairs or larger groups), size (i.e. whether the project was a small standalone project or a component of a larger project), and the contribution from supervisors were noted. A summative rubric (scoring guide to evaluate the quality of student responses) was utilised by one university where a grade was awarded, while the other three universities assessed more broadly using rubrics, with an overall rating of satisfactory/unsatisfactory.

There was variation in assessment outcomes between independent assessors (Table 2). In some instances assessors did not consistently deliver the same assessment outcome, nor rank students in sequential order of performance. However, this variation was less where an absolute ranking of satisfactory/unsatisfactory was applied. That is, while the majority of assessments mimicked results of pass/fail for students, where a score was required, the rankings of which report was of a higher standard than another were less consistent. There was also a situation where one assessor ranked all reports from a university as unsatisfactory.

Thematic analysis of the group discussion revealed three key themes: importance of assessors understanding the project scope; influences on assessment decision-making; and understanding the broader program of assessment.

Importance of understanding the project scope: Differences within the tasks were acknowledged, although all involved a project report from WIL experiences. Although the projects were similar in nature, the scope (breadth and depth) varied. Assessors noted that they were intuitively comparing the scope and quality of work to their own expectations both of the project and the assessment tool from their own university. Assessors who were less experienced in marking foodservice assessments reported that the process was easier where there was less discretion in the assessment proforma (e.g. satisfactory/unsatisfactory). The task highlighted how much detail is needed to understand a single foodservice assessment internally and externally to the university. The assessors reported that whether students could adequately demonstrate the elements of dietetic competency standards in the setting was influenced by the project scope. Seemingly, where a university used the WIL, with a significant expectation on the report for assessment, then there was an expectation that a larger number of elements must be covered. That is a much larger scope of work might be required to show more aspects of professional competence in this setting, if only the work reflected in the report is used. They reflected that the ability of a single report to reflect all competencies is problematic.

Table 1 Description of undergraduate foodservice curricula across four participating universities

<i>Characteristic</i>	<i>University 1</i>	<i>University 2</i>	<i>University 3</i>	<i>University 4</i>
Positioning of food service unit and placement	Unit content and WIL occur in semester 2, third year of a 4 year program or equivalent position within post-graduate degree	Foodservice theory taught at the end of 3rd year undergraduate WIL the following (final) year or equivalent position within post-graduate degree	Foodservice theory taught at the end of 3rd year, WIL occurs in 4th year or equivalent position within post-graduate degree	Foodservice theory taught at the end of 3rd year, 3-day intensive at start of 4th year, WIL occurs in 4th year or equivalent position within post-graduate degree
Length and description of foodservice WIL	15–20 days; most WIL occurs in hospitals; may be completed in pairs or larger groups, with reports submitted in pairs	20 days, most WIL occurs in hospitals and aged care facilities; may be individual or completed in pairs	20 days, most WIL occurs in hospitals and aged care facilities; individual projects, students placed in pairs	20 days, most WIL occurs in hospitals and aged care facilities; may be individual or completed in pairs
Description of assessment artefacts within foodservice assessment and WIL	Written project report and presentation (45%) Practical manual (40%) Training module (15%) Professional behaviour appraisal	Menu Planning, Cuisines Presentation and Report, Online Quiz, Diet Cookery Report, Group Consultancy Presentation/Report Project report from professional WIL Professional behaviours appraisal Description of how competencies are demonstrated in the foodservice setting	Report Oral presentation Evidence of attendance Description of how competencies are demonstrated in the foodservice setting	Group assignment—simulated establishment of a foodservice report Oral presentation Professional Practice & Foodservice Management Competency Form; incorporates description of evidence contributing to the development of competency.
Description of foodservice project assessment while on WIL	The purpose of the report is to provide a detailed description of the aims and findings of the project and the next steps to be taken to bring about change in foodservice settings.	The project is developed by the WIL site supervisor in collaboration with the university domain leader. It can be a written and/or oral report, or series of smaller reports that is evidence based and follows a scientific method framework. It will address a current issue at the facility and will give students the opportunity to demonstrate key competencies within a foodservice setting.	The project report should demonstrate the students' ability to assess, plan and evaluate opportunities to improve food and nutrition in an institution where clients are nutritionally dependent. It will also demonstrate their ability to research and evaluate within a foodservice context.	The project report should fully describe a quality improvement project undertaken in an institutional foodservice setting. It should demonstrate the students' understanding of the foodservice system in that context and their ability to synthesise theory and practice to formulate practical solutions to foodservice problems.
Description of foodservice WIL project assessment	Rubric, with marks allocated	Rubric, report marked as Satisfactory/Unsatisfactory	Rubric, report marked as Satisfactory/Unsatisfactory	Rubric, report marked as Satisfactory/Unsatisfactory

WIL, work integrated learning.

Table 2 Actual and independent assessment^a results from the foodservice reports of four universities

University and student code	Independent assessment 1	Independent assessment 2	Independent assessment 3	Independent assessment 4	Actual assessment result ^b
<i>University 1 (maximum 55 marks)</i>					
Student A	26	27	37.5	43	30
Student B	40	23	29	37.5	33
Student C	49	33	44	51	42
Student D	51	34.5	26.5	35.5	47
<i>University 2</i>					
Student A	Unsatisfactory	Satisfactory	Borderline	Unsatisfactory	Borderline
Student B	Unsatisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Student C	Unsatisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Student D	Unsatisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
<i>University 3</i>					
Student A	Satisfactory	Unsatisfactory	Unsatisfactory	Unsatisfactory	Unsatisfactory
Student B	Satisfactory	Satisfactory	Satisfactory	Satisfactory with minor changes	Satisfactory with minor changes
Student C	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory with minor changes
Student D	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
<i>University 4</i>					
Student A	Pass—Good/excellent	Pass—Average	Pass—Borderline pass	Pass—Good/excellent	Pass—Borderline pass
Student B	Pass—Average	Pass—Good/excellent	Pass—Average/good	Pass—Average/good	Pass—Average/good
Student C	Pass—Average/good	Pass—Borderline pass	Not completed	Pass—Good/excellent	Pass—Good
Student D	Pass—Average/good	Pass—Good/excellent	Not completed	Pass—Borderline pass	Pass—Good/excellent

^a Independent assessors 1–4 were conducted by four different academics, two staff from each of two universities (total of 8 independent assessors).

^b Actual assessment result was the result the student originally received.

Influences on assessment decision making: Assessment decision-making was reported to be influenced by several factors including quantity versus quality of work completed during placement (e.g. were sufficient skills demonstrated for the student to demonstrate competence, or were only a few skills demonstrated repeatedly?), and research versus quality improvement (e.g. did the project use validated and reproducible methods, as opposed to the use of tools adapted in the real-world setting?). The students' ability to communicate in the written form influenced decision making, regardless of whether it was part of the assessment criteria. It was acknowledged that this may disadvantage those where writing is not a strength, including international students. Assessors were unsure whether to mark the project-based heavily on the writing style, or whether it was about outcomes associated with the foodservice system under review. This is important as ideally written communication can be assessed long before students attend WIL. Additional comments included concerns about student independence and level of supervision for the project. This also extended to the amount of work that might be expected of a team/group project compared to individual work.

Importance of understanding the broader program of assessment: Assessors described the importance of understanding where a piece of assessment fits, and where other

complementary tasks (e.g. interview with the department manager to discuss the organisational structure of department; or exploration of sustainability measures being implemented within foodservices) may fit around this task within the overall program of assessment. As a standalone assessment they discussed that it was difficult to consider consistently as an independent assessor. The importance of additional site-based information such as the reason for undertaking the project, and rationale for selecting the methods of inquiry were not always clearly identified in the student report. When assessment outcomes were discussed across each participating university, absolute consensus was difficult to achieve (and would require second review), although the decision on pass or fail status trended towards agreement once a better understanding of overall assessment was available.

Discussion

This study aimed to review and moderate an assessment artefact of foodservice WIL to develop a shared understanding of one tool that may be used in a suite of evidence to demonstrate competence. Obtaining high levels of consistency in assessment of this task proved challenging and is

consistent with previous reports of assessment benchmarking and moderation within dietetics.^{12,14}

A recent study exploring the assessor moderation of recordings in another setting, student clinical performance, also identified differences in absolute scores.¹² Three key factors arose from review of the moderation in that research as influencing assessor experience and outcomes: the role and use of assessment instruments; assessor factors, particularly individual philosophies and perspectives that may influence assessment decisions; and judgement subjectivity.¹² Similar findings arose from the present study, however, differences in assessor outcomes were potentially exaggerated here due to the greater variability in the project and challenges in defining competence in foodservice through this one assessment artefact. This raised a number of issues to consider in the moderation of assessment artefacts as evidence of competence, which are part of a broader portfolio of evidence. These include assessment of a single artefact by those not recognising their place in assessment of competency, namely external moderators (e.g. internal university moderation by non-dietitians of assessment processes/rubrics), or accreditation assessors (e.g. dietitians who will not all have foodservice or education expertise).

Content knowledge has been described as a prerequisite for credible and fair student assessment. It has been proposed that 'with increasing expertise, assessors typically became more efficient in obtaining a good representation of performance and provide richer and more interpretative descriptions of trainee performance' (p. 561).¹⁵ Although all assessors here were experienced broadly in dietetic education assessment, some had only moderate levels of recent foodservice expertise. This work also supports previous findings that assessors benchmark their judgement based on their own capabilities which may be higher than the required acceptable standard.¹⁶ This provides evidence of the need for clear descriptors of performance to assist in sharing understandings of standards for entry to practice.

Additionally, it has been suggested that richer mental models of experts enable them to better detect errors,¹⁷ but here this was limited by the absence of situation specific cues within the standalone foodservice WIL reports. Varying beliefs about the purpose, guidance, and authenticity of the task¹⁵ may also have contributed to the results. The nature of WIL where projects are variable and dependent on the local context and the skills of the supervisor may impact on the foodservice project scope and methods. It has been noted that assessment of WIL is challenging, and that pass and fail assessments may enable more consistent standardisation of performance.¹⁸ The findings of this study support this view whereby a single task can only make a partial contribution to overall assessment of competence.

The assessment of a report whether prepared by an individual or group and marked to a rubric with varying levels of discretion, remains subjective. Such subjective decision making has critics within the educational literature, while others suggest that 'many fallible judgments, summed together, create value' (p. 566).¹⁹ Such subjective assessments are used widely within healthcare, including in

clinical reasoning and decision making. The contribution of multiple assessment artefacts considered by a range of assessors has been suggested to be critical for credible judgement.¹⁴ Such assessment systems that include the contribution of multiple assessors, assessment method and tools²⁰ contribute to the determination of competence at entry level.

As we report in this study, one piece of assessment alone considered independently, particularly where assessors are inexperienced in the use of assessment tools, delivers inconsistent outcomes. This supports the rationale for multiple assessment artefacts to construct decisions, consistent with the programmatic assessment model incorporated within many dietetics' programs.^{21,22} Ensuring trustworthy assessment decisions is critical, particularly within high stakes assessment such as that undertaken during WIL. Procedures that can bring credible and trustworthy decisions with a program of assessment include: expertise of the assessors, training of those undertaking assessment on interpreting standards, and ensuring that those undertaking assessment decisions are independent of the learning process of individual learners.²³

Although limited to the contributions from four universities, the findings of this research have important implications for progressing the understanding of competency-based assessment in dietetics. The consideration of a standalone assessment artefact is insufficient; rather the broader program of assessment should be considered when evaluating student performance. This research has also provided valuable insights for processes involved in accreditation of programs where historically assessment pieces have been viewed in isolation during site visits to universities. Instead, accreditation processes must examine wide ranging artefacts across the program of assessment. Comparing assessments between universities is difficult even when the reviewers (such as in this research) knew the purpose of the process. Reviewers accrediting programs need familiarity with all assessment processes and outcome measurements, in order to better triangulate views on whether or not students in a program have adequate opportunity to demonstrate competency and that they are then suitably assessed.

The present study explored the moderation of a key piece of assessment across multiple universities and assessors. Some inconsistency in the overall assessment outcome was evident. Educational literature provides an explanation for this inconsistency, emphasising the importance of multiple assessors and assessment artefacts across a programmatic assessment model. It is particularly important to consider the setting of WIL and determine relevant artefacts for that setting. Project reports are relevant but need to be considered in the context of broader behaviours and experience in that setting. Considering such reports in isolation, especially without that context cannot provide suitable standardisation of competency-based assessment. There is a need for shared understanding of what is expected for entry to practice to support credible and dependable assessment decisions.

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Conflict of interest

The authors declare that they have no conflicts of interest to report.

Authorship

All authors contributed to data collection, JP drafted the manuscript, all authors provided critical review of the manuscript. All authors approved the final manuscript submitted for publication. The authors acknowledge the contribution of Isabella Maugeri for collating the study results.

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